UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,187	09/12/2003	X. Long Dai	068062.0166	8281

31625   7590   09/27/2007

BAKER BOTTS L.L.P.
PATENT DEPARTMENT
98 SAN JACINTO BLVD., SUITE 1500
AUSTIN, TX 78701-4039

EXAMINER
PATEL, JAYESH A

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
09/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/661,187	DAI ET AL.
	Examiner	Art Unit	
	Jayesh A. Patel	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>13 August 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>13-20 and 34-37</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>13-20 and 34-37</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>26 May 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 08/13/2007 have been fully considered but they
are not persuasive. The reasons are explained below.

2. Claims 1-12 and 21-33 have been withdrawn from consideration.

3. In response to the arguments on Page 13 that " there is no motivation,
teaching or suggestion in the cited references to combine the references. The
examiner disagrees. The applicant argues that neither Evans or Sharnoff or
combination does not disclose "a method of registering holographic images". The
examiner disagrees. Evans discloses at **(Col 2 Line 63, Col 3 Line 11)** that the
images are aligned **(which is registering images)**. Evans talks in the
background **(analogous art and field of endeavor)** the use of holograms in the
inspection device at **(Col 1 Lines 57-67 and Col 2 Lines 26-27)** and is silent and
does not recite the word **"Holograms or Holographic images"** in the body.
Evans further discloses at **(Col 9 Lines 63-67 and Col 10 Lines 1-15)** what the
two images are. Also Sharnoff discloses the comparing **(difference)** two
Holographic images at **(Col 2 Lines 37-52, Col 4 Lines 1-46 and Col 8 Lines
17-29)**. Sharnoff further discloses that the inspection system as disclosed
provides speedy and affordable comparative analysis at **(Col 1Line 21-23)**,
therefore it would be obvious for one of ordinary skill in the art to compare two
holographic images as taught by Sharnoff in the inspection method and
apparatus of Evans for the above reasons.

4. In response to the arguments on pages 13 and 14 that **"calculating a confidence value based on a magnitude operation"**. The Examiner disagrees.

Evans at **(Col 20 Lines 53-55)** discloses calculating any offset that exists between the two images and provides a **real number** (magnitude) for each value. Evans further discloses at **(Col 21 Lines 39-41 and 44-50)** that the differences **(correspondence)** between the two images are determined. Evans further discloses at **(Col 11 lines 19-24 and Col 20 Lines 57-67)** that the correlation surface is achieved between the two images. Claim 15 (current application) recites that **"calculating the confidence value"** utilizes at least one identified coherent peak and Evans discloses in **(Fig 1 Element 20 and Col 21 Lines 35-38)**. Claim 16 (current application) recites **"calculating the confidence value"** further comprises determining the difference in strength between a first coherent peak and a second peak. Evan discloses this in Claims 4 and 5. Due to all the above reasons Evan discloses, "calculating a confidence value based on a magnitude operation".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13-20,34 and 36 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Evans et al. (US 553769) hereafter Evans in view of Sharnoff

(US 4725142) hereafter Sharnoff.

5. Regarding Claim 13, Evans discloses a method for registering images **(Fig 1**

and Col 2 Lines 57-67 and Col 3 Lines 1-3) comprising: providing a first image

(FOV 1) and a second corresponding image **(FOV 2)**; separately transforming the

first image and the second image using a Fourier transform **(Element 6,6' and**

Col 10 Lines 17-18); separately performing a sideband extraction operation on

the resulting first image and the second image **(Element 8,8' and Col 10 Lines**

42-45); separately filtering the resulting the first image and the second image

using a bandpass filter **(Element 9,9' and Col 10 Lines 45-52 where Low and**

High frequencies are removed which is band pass filtering);calculating a

coherence function of the resulting first image and the second image at **(Col 7**

Lines 59-67); transforming the coherence function (spectrum) using an inverse

Fourier transform **(Elements 10,10' and Col 13 Lines 41-45)**; performing a

magnitude operation on the resulting transformed coherence function **(Element**

12,12' and Col 14 Lines 26-30); calculating a confidence value based on the

magnitude operation at **(Col 20 Lines 53-55,Col 21 Lines 39-41 and 44-50)** and

determining the acceptability of the correspondence between the first image and

the second image based upon the confidence value at **(Col 21 Lines 39-41 and**

44-50) that the differences **(correspondence)** between the two images are

determined. Evans further discloses at **(Col 11 lines 19-24 and Col 20 Lines 57-67)** that the correlation surface is achieved between the two images.

Evans does not explicitly recites the image1 and image 2 being Holographic images in the body, however at **(Col 1 Lines 57-67 and Col 2 Lines 1-30)** Evans discloses the images are holograms and the images are digitized for further processing. The (FOV1) and (FOV2) can be holograms and can be compared for inspecting the differences. This is shown as below.

Sharnoff discloses the method and system for comparing two holographic images at **(Col 2 Lines 28-52, Col 4 Lines 1-46 and Col 8 Lines 36-43)**. Sharnoff discloses that the inspection method as disclosed is optionally, dependent on a preselected radiation phase, or amplitude or a wide choice of combined phase and amplitude simultaneously. In this way a repetitive and affordable inspection method is made at **(Col 1 Lines 16-24)**. Imaging system and method as disclosed by Evans can be used with holograms as well and the hybrid technique as disclosed by Evans is a method of finding defects on digitized device images using a combination of spatial and frequency domain techniques at **(Col2 Lines 57-60)**. Both Evans and Sharnoff are from the same field of endeavor and are analogous art, therefore it would be obvious for one of ordinary skill in the art at the time the invention was made, to use the system and method of comparing two holographic images as disclosed by Sharnoff and digitally processing them as taught by Evans for the above reasons.

6. Regarding Claim 14, Evans and Sharnoff disclose the method of claim 13 further comprising providing the first holographic image and the second holographic image using a digital holographic imaging system in **(Fig1, and 3 Evans)** and **(Fig 7 Sharnoff)**.

7. Regarding Claim 15, Evans and Sharnoff disclose the method of claim 13. Evans further disclose wherein calculating the confidence value utilizes at least one identified coherent peak in **(Fig 1 Element 20 and Col 11 Lines 24-31)**.

8. Regarding Claim 16, Evans and Sharnoff discloses the method of claim 13. Evans further discloses wherein calculating the confidence value further comprises determining the difference in strength between a first coherent peak and a second peak at **(Figs 1,2 and Col 11 Lines 24-31)**. The offset in the peaks represents the difference.

9. Regarding Claim 17, see the explanation of Claim 13. Evan also discloses the conjugation in **(Fig 1, Col 11 Lines 21-24 and Col 20 Lines 57-61)**.

10. Regarding Claim 18, see the explanation of Claim 14.

11. Regarding Claim 19, see the explanation of Claim 15.

12. Regarding Claim 20, see the explanation of Claim 16.

13. Regarding Claim 34, see the explanation of Claim 13 and **(Fig 1 Elements 12,12' for threshold operation)**.

14. Regarding Claim 36, see the explanation of Claim 17 and 13.

Claims 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evans in view of Sharnoff and in further view of Stone et al. (US 6628845) hereafter Stone.

15. Regarding Claim 35, Evans and Sharnoff discloses the method of Claim 13. Evans and Sharnoff however do not disclose a method further comprising performing an integer translation and subpixel modeling operation on the resulting magnitude image.

Stone discloses a method for subpixel registration and integer translation of images at **(Col 5 Lines 44-54)**. Stone also discloses that the sensitivity due to mis-registration is very large which places the requirement on registration that it be done to subpixel precision at **(Col 1 Lines34-36)**. Stone also discloses that the method performed is computationally efficient at **(Col 5 Lines 54-55)**. Evans,

Sharnoff and Stone are from the same field of endeavor, therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the teachings of Stone in the inspection methods of Evans and Sharnoff for the above reasons.

16. Regarding Claim 37, Evans and Sharnoff discloses the method of Claim 17. Evans and Sharnoff however do not disclose a method further comprising performing an integer translation and subpixel modeling operation on the resulting magnitude image.

Stone discloses a method for subpixel registration and integer translation of images at **(Col 5 Lines 44-54)**. Stone also discloses that the sensitivity due to mis-registration is very large which places the requirement on registration that it be done to subpixel precision at **(Col 1 Lines34-36)**. Stone also discloses that the method performed is computationally efficient at **(Col 5 Lines 54-55)**. Evans, Sharnoff and Stone are from the same field of endeavor, therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the teachings of Stone in the inspection methods of Evans and Sharnoff for the above reasons.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed

within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory

period, then the shortened statutory period will expire on the date the advisory

action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Jayesh A. Patel whose telephone number is

571-270-1227. The examiner can normally be reached on M-F 7.00am to 4.30

pm (5-4-9). If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

Jayesh Patel
09/20/07

SAMIR AHMED
PRIMARY EXAMINER